

SILICON VALLEY'S NEXT ACT: CREATIVITY, CONSUMERS AND CROSS-DISCIPLINARY INNOVATION MOVE TOWARD CENTER STAGE

by Kim Walesh

Perhaps no region in the world has undergone more profound change in 50 years than San Jose/Silicon Valley. Since the 1950s, the area from Palo Alto to San Jose has transformed from an agricultural economy into the world's leading center of technology innovation and entrepreneurship.

Waves of innovation—in defense electronics, integrated circuits, personal computing, the Internet and networking—powered business start-up and growth and fueled immigration from across the United States and around the world. Small, disconnected communities grew together into a well-known region of more than 2.3 million people. The region's urban center, San Jose, grew from 95,000 people in 1950 to nearly 950,000 in 2005, when it emerged as the tenth largest city in America. Despite the employment contraction following the 2001 dot-com bust, the region remains the most significant concentration of technology companies and talent in the world.

Yet today, business and civic leaders in Silicon Valley are readying for the next wave of change. Companies, both established and brand new, are tapping technical talent and courting expanding markets around the world as the global business model advances in its next-stage of evolution. As a relatively high-cost region and mature technology center, Silicon Valley is challenged to provide a very high 'return on location' for companies that operate here—an environment for innovation, entrepreneurship, and productivity that can remain unparalleled when compared to a growing set of competitors.

Listening to their corporate community, regional leaders are seeing creativity, consumer experience and cross-disciplinary innovation as central to sustaining Silicon Valley's unique role as the world's leading center for innovation. This awareness is sparking new dialogue and actions to create new 'place-based' advantages that can support the next wave of innovation.

The Idea Economy Values Creativity

In many ways, Silicon Valley has been, for a long time, the ultimate "idea economy"—a place where companies and communities have grown through developing and using new ideas. Since the early days of Hewlett Packard, the Varian Brothers and Fairchild Semiconductor, the value of technology products invented here has come not from the physical inputs themselves, but from knowledge and intellectual capital that combine and augment basic physical materials (e.g., silicon) in powerful ways.

While entrepreneurs and executives in Silicon Valley have always emphasized innovation, company executives and employees today talk increasingly about creativity as key to value creation in this region. In a recent survey of Silicon Valley tech workers, 84% said recently that creativity is important to the success of their business. And the 2006 Index of Silicon Valley documents that Silicon Valley has a much stronger concentration of design, engineering, scientific, and business management talent to drive the creation of new ideas, methods, products, services, and business models than do other

technology centers. This high-end talent comprises 14% of overall Silicon Valley employment, compared with 8-9% of the employment base in the next-closest regions of Austin, Seattle and San Diego. Especially in high-cost regions like Silicon Valley, innovative companies must marry disciplined creativity and high-order value creation with aggressive commercialization.

Technology + Design/Consumer Experience

More and more, product value stems not just from a product's creative new technical features, but from the product's design and other immaterial qualities that please consumers. Non-technical elements—design, ease of use, brand, personalization, quality of service, distribution experience, content—are becoming more important ways of creating and sustaining competitive advantage for technology products.

The ability to combine deep technical knowledge with new design skills and consumer orientation will be essential for Silicon Valley companies, and for the region itself, to succeed. As Leslie Bixel, an Adobe executive overseeing innovation in the Advanced Technology Group, explains, "Having the coolest technology is important, but so is delighting the consumer with the entire product experience. This means user-centered design and more focus than in the past on distribution, marketing, and brand."

This new-found importance on design and sensitivity to consumer experience is a departure from Silicon Valley's history as primarily a producer economy. Traditionally, most Silicon Valley companies produced products that were sold to other businesses, and were then used as inputs to final products or for production support (e.g., semiconductors, electronic components, semiconductor equipment). Today, a growing segment of Valley companies is now focused on consumers. Some of these, such as Yahoo, eBay and Google, emerged during the Internet boom. Others, 'old' by Silicon Valley standards, are energized around new consumer products—Apple with its iPod and iTunes; Hewlett-Packard's emphasis on digital photography and video tools for personalized artistic creativity and content creation; Adobe with software tools for creating, editing and distributing digital images, audio and text; Electronic Arts with computer and video games; IDEO's international prominence in product design. Even some producer product companies, such as Intel, are making significant investment in the 'soft' technology of consumer branding.

Paralleling the new emphasis on design and consumer experience has been a solid contraction in production-related employment and a rise in software, business and information services and headquarters functions.

Requirements for Success

This new valuation of creativity and the consumer experience emerged in the wake of the dot-com collapse of late 2000. During this time, Valley leaders have started to recast the Valley's core competency from simply being a hotbed of high-tech to one that is known for a broad, deep base of creativity and innovation. New types of skills, capacities and community infrastructure are required for success.

#1 New Value for Design Disciplines

One interesting implication of this shift is that people with specific training in art and design are taking their place

in the high-tech workforce. More people with training in fields like product design, interactivity, user experience, web design, animation, graphic design, digital media, game design and brand strategy are working in high-tech as employees, contractors, or consultants. While it should not be overstated, a range of art and design disciplines may be important to Silicon Valley in the future. A new set of art and design careers may provide an interesting alternative career path to new middle-class professional jobs. The State of California projects 45,000 new jobs in art, design and entertainment to be created from 2002 to 2012. Two of the fast-growth subcategories are “multimedia artists and animators” and “commercial and industrial designers.”

In Silicon Valley, Cogswell College promotes the “fusion of art and engineering” and helps students launch rewarding careers working on special effects, animation, scripts, music and sound in the motion picture, video gaming, and high-tech industries. Cogswell students are hired by digital entertainment companies like Electronic Arts, LucasArts, Pixar and Industrial Light and Magic, but also by Cisco, Applied Materials and Intel. San Jose State University is the largest provider of both art and design students in the Bay Area, with particular strengths in new media and product design. And Stanford University is developing a new “D-School”—an interdisciplinary research and education institute promoting a new kind of design thinking.

In 2003, the National Research Council documented how art and design disciplines are making substantial contributions to research and product development in the fields of computer science, networking and communications technology. This interaction between artistically creative practices and traditional technology fields is starting to surface as part of the magic mix of Silicon Valley.

#2 New Importance of Cross-Disciplinary Teamwork

Creative breakthroughs come from an increasingly wider variety of disciplines working together.

Traditionally, Silicon Valley companies have valued technical specialists. More and more, companies need specialists that respect and can work with people from other disciplines—computer scientist and engineers, for example, who can work with designers and anthropologists and marketing experts. And, in addition to people with specialized expertise, companies also value people who are transcendent over disciplines, people who can integrate and synthesize and strategize.

Traditionally, Silicon Valley has had a “left-brain” engineering culture—emphasizing the logical, the mathematical, the sequential, the rational, the linear. Growing competition and business shifts toward consumers, software and services place value also the “right brain”—the visual, the empathetic, the aesthetic, the intuitive, the simultaneous, the playful. This integration of left- and right-brain capabilities is more and more a factor for success at the individual, team, organization, and community levels.

As highly creative business functions concentrate in Silicon Valley and as more business operations span the globe, more workers here find that their jobs involve managing cross-border teams, processes, operations. At San Jose State University, the largest single provider of engineers to Silicon Valley, engineering students are

being groomed not just to be technical specialists, but to manage cross-border, cross-disciplinary, cross-cultural R&D teams. There is also a new emphasis on “services engineering” as a growing profession and a new curriculum. At IBM, for example (San Jose’s second largest private-sector employer), more than 60% of revenue stems now from client services. In contrast to the lone-star cubicle dweller of the past, successful engineers must now blend engineering expertise with people skills and business knowledge and must work on cross-disciplinary teams—most often on site interacting daily with the client.

#3 New Value for the Creative Community Environment

Competing on creativity requires new attention to the community quality-of-life and infrastructure, the context in which creativity is nurtured and take place. The very nature of the community—the kinds of creative outlets and atmosphere it provides—affects the creativity of current employees, and the ability of employers to attract and develop new talent. Competition for talent will only get more intense as regions worldwide begin experiencing labor shortages in the next decade caused by the accelerating retirement of Baby Boomers.

In Silicon Valley, leaders are working to add new vibrancy and dimensions to Silicon Valley’s traditional suburban amenities and ambiance in order to compete on creativity. They are doing this work even as they continue to tackle more traditional challenges such as high-cost housing and transportation infrastructure.

This means investing in vital city centers—in both Downtown San Jose as the region’s urban center and in many, smaller community and neighborhood centers—as important locations for meetings and interaction, for entertainment and enrichment. To date, Silicon Valley has succeeded as a place despite its lackluster built environment. To compete for talent and status against other world cities, long overdue improvements in urban planning, architectural quality, public spaces and public transportation are required and are starting to become visible.

City governments are setting new expectations for architectural quality by investing in their own landmark buildings, such as the new Richard Meier-designed City Hall in San Jose’s downtown. Smaller communities like Sunnyvale, Mountain View, Redwood City and Palo Alto have successfully revitalized a network of charming, walkable town centers with new shopping, dining, entertainment and housing opportunities. Land-use plans for key employment districts have been updated to emphasize mixed-use vibrancy and higher-density, higher-quality-structures—a marked departure from the ‘high-tech industrial campus’ vision that guided the region’s recent past.

This means supporting forums and initiatives that foster conversation and collaboration across disciplines. Joint Venture Silicon Valley’s Technology Convergence Consortium, for example, is helping to speed the convergence of three cutting-edge technological disciplines—biotechnology, nanotechnology and information technology—by promoting new partnerships among companies, research and education institutions, and investors. On excess land at the NASA Research Park in Mountain View, universities, businesses, and local governments are working together to create the

Bio*Info*Nano Research and Development Institute (BIN RDI). The Institute will provide specialized research capabilities for established and startup companies, and create a magnet for cross-disciplinary research talent. And the new San Jose BioCenter provides office and wetlab space, and a supportive business environment, to a wide variety of bioscience start-ups; for many, their core technology or business application links to information-or nano-technology.

This means valuing cultural amenities and arts education for their link to Silicon Valley's economic future, as well as for their value to community-building. This starts with measuring what matters. Silicon Valley's Creative Community Index (2002, 2005) is undoubtedly the most comprehensive study of regional creativity conducted in any U.S. region. Produced by Cultural Initiatives Silicon Valley, the Index affirms the very strong value that residents and employees place on K-12 arts education and on their personal participation in artistic activities.

With support from the Packard Foundation, the region has made strides in restoring education in traditional visual and performing arts to the public elementary schools. The challenge is to sustain this work and to layer on new skill development in design and digital media important for success in the creative economy.

New, affordable live-work spaces are opening in 2006 that can accommodate nearly 150 artists. And, while arts organizations of all sizes continue to struggle financially, examples abound of artistic excellence, strong board and staff leadership, and effective audience development initiatives.

This means raising San Jose/Silicon Valley's stature as a world cultural center and contributor. The strategy is to develop and position San Jose/Silicon Valley as North America's leading center for creativity at the intersection of art and technology. This involves a new biennial international art festival to be launched in August of 2006 called ZeroOne San Jose. Other components of the strategy, which is embraced by a collaborative of civic institutions and corporate backers, are a new facility focused on art and technology exhibitions and education, and an airport public art initiative that is the largest new media curatorial program in the world.

To continue attracting and developing talent over the long-haul, the region and its largest city aim to lead distinctively in art and culture, in addition to technology and entrepreneurship.

#4 New Leadership That 'Connects the Dots'

Like other communities, San Jose/Silicon Valley struggles with leadership. Locals lament the apparent lack of companies with a visible long-term commitment to advancing the region. The dynamism, mobility and diversity of the area are all challenging, as is the sheer busyness of people struggling to integrate work and home—much less civic—life.

Yet one interesting new development is the launch in 2004 of a new regional leadership network called 1stACT Silicon Valley (re: Art, Creativity, Technology). 1stACT's vision is for Silicon Valley to be "the most creative place in the world." 1stACT is a network of influential leaders that see increasingly tighter ties between creativity, the arts and the Silicon Valley economy. It is creating a new alignment of interests across sectors that can work together to ensure an appropriately creative local

environment. 1stACT builds on some existing leadership organizations, such as American Leadership Forum Silicon Valley, Cultural Initiatives Silicon Valley, Joint Venture Silicon Valley and the Arts Roundtable. But it marries this existing civic infrastructure to a CEO Advisory Council that includes top leaders from companies such as Cisco Systems, Adobe, Agilent and Knight Ridder. In addition to its role in 'thought leadership,' this network of networks is advancing projects to diversify the arts audience base, to develop Silicon Valley's cultural identity and to step-up development of Downtown San Jose as the region's creative urban center. Perhaps most important, 1stACT is setting the stage for increased corporate and community investment in arts, cultural and creative infrastructure.

The Creative Community of San Jose/Silicon Valley

Technology Companies...that value creativity and employ people trained in artistic/design skills

Creative Service Companies...that fuse arts, creativity and technology to provide professional services

Creative Independents...who earn their living using artistic and creative skills

Education Institutions...that develop skills and qualities of a creative workforce

Cultural Institutions...that celebrate and advance the arts, heritage and the creative process

Support Networks...that nurture and promote the creative economy.

Over its 50+ year recent history, Silicon Valley has demonstrated remarkable resilience. With each wave of innovation and in-migration, the economy and community have adapted to weather change and sustain success. At this particular junction, civic and business leaders are working together to understand the nature of the changes taking place and how to set the stage for the next Silicon Valley. There is a clear sense, though, that the laissez faire approach taken to economic development in the past—when Silicon Valley was the undisputed center of the technology universe—is no longer appropriate. The rise of many other city-regions around the world that are focused aggressively on technology-based economic development has shown local business and civic leaders that they can't take Silicon Valley's success for granted. The lone maverick, libertarian mindset that will always be a part of Silicon Valley's soul, is being augmented by business, government, philanthropic, education and cultural institutions working together for mutual success. The global economy will benefit as Silicon Valley creates new sources of competitive advantage for a successful next act.

Kim Welsh is Assistant Director for Economic and Cultural Development with the City of San Jose. She is also co-founder of Collaborative Economics, a Silicon Valley-based consultancy.

(Chapter in forth coming book, *The Creative Enterprise*—a three volume series on innovation management. *The Creative Enterprise* is being edited by Tony Davila at Stanford University, Marc Epstein at Rice University and Rob Shelton of Navigant Consulting, and will be published by Praeger Publishers.)